

**INITIAL STATEMENT OF REASONS
FOR PROPOSED BUILDING STANDARDS
OF THE
OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT**

**REGARDING PROPOSED CHANGES TO THE
CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE
AND
CALIFORNIA BUILDING CODE
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PARTS 1 & 2**

The Administrative Procedure Act (APA) requires that an Initial Statement of Reasons be available to the public upon request when rulemaking action is being undertaken. The following information required by the APA pertains to this particular rulemaking action:

STATEMENT OF SPECIFIC PURPOSE AND RATIONALE:

**Title 24, Part 1
California Building Standards Administrative Code**

Chapter 6, Article 11

Pursuant to SB 1953 (Chapter 740, Statute of 1994), all hospital buildings in service prior to January 1, 2000, have been evaluated based on their expected seismic performance. Hospital buildings are required to progressively improve their expected nonstructural performance by specific deadlines. Nonstructural Performance Category-2 (NPC-2) must have been achieved by January 1, 2002, and NPC-3 must be achieved by January 1, 2008, or January 1, 2013, if an extension is granted. All acute care hospital buildings must achieve NPC-5 by January 1, 2030. The NPC-4 is a reporting category for conforming hospital buildings that meet minimum bracing standards.

Title 24, Part 1, Chapter 6, Article 11, describes the Nonstructural Performance Categories, and sets forth requirements for achieving those categories. This proposal will create a new seismic performance category, pursuant to the authority granted in Health and Safety Code §130005(b) of the Alfred E. Alquist Hospital Facilities Seismic Safety Act of 1983. The new performance category, NPC-3R, will be applicable to SPC-2 buildings. This is an optional performance objective for buildings that will be retired from service by 2030. Seismic forces will be determined using Section 1630A of the 1995 CBC with an Importance Factor $I_p=1.0$. To achieve NPC-4 or higher objective (if at some later date, the hospital chooses to retrofit the building to remain in service beyond 2030), all components or systems designed to NPC-3R must be shown to meet current code.

The proposal includes restricting the need to perform numerical checks for load path if the design load at the connection point is less than specified values. Wall, floor, and roof systems are generally highly redundant structures. They can sustain moderate concentrated loads from nonstructural elements without significant distress. The proposed reaction limits are comparable to the code required minimum concentrated forces. For example, in addition to floor loading requirements expressed in unit loads (for example, 40 psf), there are code requirements that the floor be able to sustain concentrated loads (such as those found in the 1998 CBC, Table 16B-A).

The capacity of welds, anchors, and fasteners is determined using the 2001 CBC. There has been significant progress made in defining the capacity of connections. The 2001 CBC incorporates many of these advances, and so is retained for purpose of determining connection capacity. Where supporting structural elements are load in manner that could induce torsion, the effects of the torsional load must be considered in the analysis.

The proposal will also exempt ceilings in small rooms (under 300 square feet) from lateral bracing requirements, provided that the rooms are not used for any of the following:

- Intensive care or coronary care unit patient room

- Angiography laboratory
- Cardiac catheterization laboratory
- Delivery room
- Operating room
- Post-operative recovery room

This exemption is based on experience in past earthquakes, which has shown that ceiling systems in small rooms surrounded by four walls rarely suffer collapse, although ceiling tiles may fall from lay-in ceiling systems. The rooms not eligible for the exemption contain patients who may be vulnerable to injury should tiles fall or the ceiling suffer a partial failure.

The proposal also modifies the applicable code standard for nonstructural bracing that must be met for NPC-3 and NPC-4. The basic regulations for SB 1953 were implemented in the mid-1990's. The nonstructural provisions of these regulations were based on the 1995 CBC (1994 UBC), and were essentially identical for retrofit, renovations, and new construction. For the 2001 CBC, OSHPD adopted the 1997 UBC as the base document. Changes in the nonstructural design requirements were extensive. The objective of this proposed code change is to directly relate nonstructural bracing requirements to the expected performance of the building structural system, by linking the nonstructural bracing requirements to the SPC of the building. For buildings with performance objectives of SPC-3 or SPC-4, the nonstructural loading requirements will be set to the 1998 CBC levels. Since the components in these buildings were originally designed to this or similar standards, the overall expected performance of the building will not be significantly reduced by this change.

Title 24, Part 2, Volume 2 California Building Code

Chapter 16A, Section 1644A.13.1.2

Pursuant to SB 1953, all hospital buildings in Service prior to January 1, 2000, have been evaluated based on their expected seismic performance. Hospital buildings in Structural Performance Category 1 (SPC-1) are at risk of collapse in an earthquake. Buildings in SPC-2 were constructed prior to the enactment of the Hospital Seismic Safety Act (HSSA), and may not be operational or repairable following an earthquake. Buildings in SPC-3 and SPC-4 were built in accordance with the requirements of HSSA, but because of certain features, may not be operational or repairable following an earthquake. Buildings were also evaluated based on the expected performance of their non-structural components, and SB 1953 provides interim retrofit targets for improved nonstructural performance.

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With the adoption of the 2001 California Building Code, the design loads for almost all nonstructural components increased dramatically. These increases can be attributed to the following causes:

1. The inclusion of near field effects.
2. The inclusion of soil conditions.
3. The consideration of component location in the building. Components in the upper levels of the building experience stronger shaking than those located at grade.

Items 1 and 2 can result in a 65% increase in the design force. Item 3 can result in a further increase of over 100% in the design force. While designing for these higher forces can be accomplished with relatively minor impacts in new design, attempts to accommodate these increased forces in older structures can create anomalous conditions. For example, replacement of a chiller on the roof of an existing building may no longer be possible, because the design forces have increased to the point where the roof structure cannot be shown to support the design earthquake loads.

The objective of this proposed code change is to directly relate nonstructural bracing requirements to the

expected performance of the building structural system, by linking the nonstructural bracing requirements to the SPC of the building. This is accomplished as follows:

- “Re-calibrate” the nonstructural performance objectives of SPC-2 buildings to a level of performance more compatible with the expected structural behavior in a strong earthquake.
- For SPC 3 and 4 buildings, revise the nonstructural loading requirements to reduce the need of structural alterations for remodels and equipment replacements. Seismic forces will be set to the 1998 CBC levels. Since the components in these buildings were originally designed to this or similar standards, the overall expected performance of the building will not be significantly reduced by this change.
- For SPC-1 and SPC-2 buildings, introduce the performance objective of NPC-3R. This is an optional performance objective for buildings that will be retired from service by 2030. Seismic forces will be determined using Section 1630A of the 1995 CBC with an Importance Factor $I_p=1.0$. To achieve NPC-4 or higher objective (if at some later date, the hospital chooses to retrofit the building to remain in service beyond 2030), all components or systems designed to NPC-3R must be shown to meet current code.
- Capacity of welds, anchors, and fasteners is determined by using the 2001 CBC. There has been significant progress made in defining the capacity of connections. The 2001 CBC incorporates many of these advances, and so is retained for the purpose of determining connection capacity.
- Restricting the need to perform numerical checks for load path if the design load at the connection point is less than specified values. Wall, floor, and roof systems are generally highly redundant structures. They can sustain moderate concentrated loads from nonstructural elements without significant distress. The proposed reaction limits are comparable to the code required minimum concentrated forces. For example, in addition to floor loading requirements expressed in unit loads (for example, 40 psf), there are code requirements that the floor be able to sustain concentrated loads (such as those found in the 1998 CBC, Table 16B-A).
- Where supporting structural elements are load in manner that could induce torsion, the effects of the torsional load must be considered in the analysis.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

There are no technical, theoretical or empirical study, report of similar documents.

CONSIDERATION OF REASONABLE ALTERNATIVES

The alternative to these proposed regulations would be to leave regulations as they are. The alternative was rejected, since it would maintain design requirements that are more restrictive than needed to accomplish the performance objectives for hospitals in California.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

There will be no adverse impact on small business.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

The regulations proposed will have no significant adverse impact on business, since they are less restrictive than current regulations.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These regulations do not duplicate or conflict with Federal regulations.